

**REMARKS**

The Non-final Office Action dated January 31, 2006 has been fully considered and these remarks are responsive thereto. Claims 1 and 24 have been amended. No new matter has been added. Claims 1-46 are pending.

Claims 24-46 were rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. This rejection is respectfully traversed.

The Office Action asserts that claims 24-46 recite a "computer usable medium" and that the specification at page 8, paragraph 1 describes "computer usable medium" as encompassing non-statutory material. However, claims 24-46 do not recite "computer usable medium" as the Office Action contends. Rather, claims 24-46 recite "computer readable medium." To the extent that claims 24-46 recite "computer readable medium," the specification at page 8, paragraph 1 discloses that examples of a "computer readable medium" include a hard disk 27, magnetic disc 29, or an optical disk 31 such as a CD ROM or other optical media. As such, each of the examples provided in the specification is an article of manufacture that provides a "useful, concrete, and tangible result."

The Office Action asserts that the specification at page 8, paragraph 1 discloses "transmission media" and objects to the use of this term in the specification as "not believed to be covered by any of the statutory categories of invention" See Office Action, page 3. However, Applicants do not appreciate this term in the specification at page 8, paragraph 1 as asserted by the Office action. Therefore, withdrawal of the rejection is respectfully requested.

Claims 1-9, 12-17, 20-32, 35-40, 43, and 44-46 were rejected under 35 U.S.C. 103(a) as being unpatentable over Jagadish (ACM Publication, 1999, "Multi-Dimensional

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Substring Selectivity Estimation") in view of Freytag (U.S. Patent No. 6,738,755). This rejection is respectfully traversed.

Claim 1, as amended, recites estimating selectivity of a string predicate in a database query comprising estimating a plurality of string predicate substrings having substrings lengths between  $q$  to  $n$  ( $q < n$ ) and selecting one candidate substring for each category of substring length each candidate identifying substring in the plurality of identifying substrings having a different length between  $q$  and  $n$ . Jagadish and Chen, either alone or in combination, fails to teach or suggest these features.

Jagadish discloses obtaining an estimate of "the number of times a particular substring occurs in a database." See Jagadish, page 387, col. 2, "Introduction", line 1-3. A queried string such as "dc-research, dc-att, dc-com, and tel = \*973360\*," (page 387, col. 2, "introduction") contains a string matching query (first three elements) and a substring match (tel = \*973360\*, in this example). Jagadish discloses that estimating the selectivity of the query as a product of the selectivity of each individual dimension is inaccurate (page 387, col. 2, "introduction") and proposes instead creating a multi-dimensional count-suffix tree to estimate substring selectivity.

Jagadish further utilizes two algorithms for estimating selectivity of strings retained in the suffix tree – the GNO (Greedy Non-Overlap) algorithm and the MO (Maximal Overlap) algorithm. In the GNO algorithm (page 392, col. 2 – 393, col. 2), the longest non-overlapping substrings of a query (abc,123 in the example provided) are identified in the suffix tree and the estimated selectivity is the product of the selectivities of the identified longest substrings. The longest substring is (ab, 12) because the longer substrings had been pruned from the tree. See page 392, col. 2, Sec. 4.1, paragraph 2 and footnote). Moreover, Jagadish discloses that pruning of the tree is essential (See page 390, col. 2 – page 391, col. 1).

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In the MO algorithm, the longest overlapping or non-overlapping substrings are identified in the suffix tree. Jagadish discloses that the substrings identified in the MO algorithm are: (ab, 12), (bc,123), (ab,23).

Jagadish fails to teach or suggest, in either the GNO or MO algorithms, estimating selectivity of a string predicate in a database query comprising estimating a plurality of string predicate substrings having substrings lengths between  $q$  to  $n$  ( $q < n$ ). Rather, in both algorithms, substrings are selected from the suffix tree based on maximal length only. In addition, Jagadish fails to teach or suggest selecting one candidate substring for each category of substring length, each candidate identifying substring in the plurality of identifying substrings having a different length between  $q$  and  $n$ . As illustrated in the examples of Jagadish, the length of the string (abc, 123) is six and the identified substrings have lengths of four, four and five. Not only does Jagadish fail to select one candidate substring for each category of substring length (Jagadish selects two substrings with a length of four), but Jagadish also fails to teach or suggest that each candidate identifying substring in the plurality has a different length (two substrings have a length of four).

Freytag fails to cure the deficiencies of Jagadish. Freytag is cited for allegedly disclosing a "predicate." See Office Action, page 5. Even assuming the Office Action's assertion to be true, Freytag still fails to teach or suggest the features of claim 1 set forth above.

To establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Because the combination of Jagadish and Freytag fails to teach or suggest all the claim features as set forth above, it is respectfully submitted the rejection should be withdrawn.

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Claim 24 is similar to claim 1 and is allowable for at least the reasons set forth above for claim 1.

Claims 2-9, 12-17, 20-23, 25-32, 35-40, 43, and 44-46 depend from claim 1 or claim 24 and are allowable for at least the reasons set forth above for claim 1 or claim 24.

Claims 10, 11, 18, 19, 33, 34, 41, and 42 were rejected under 35 U.S.C. 103(a) as being unpatentable over Jagadish and Freytag in view of Chen (U.S. Patent No. 6,738,762). This rejection is respectfully traversed.

Claims 10, 11, 18, 19, 33, 34, 41, and 42 depend from claim 1 or claim 24. As set forth above, Jagadish and Freytag, either alone or in combination, fail to teach or suggest claim 1 or claim 24. Chen fails to cure the deficits of Jagadish and Freytag.

The Office Action asserts that Chen discloses "workload." See Office Action, page 9. Even assuming that the Office Action's assertion is correct, Chen still fails to teach or suggest features of claim 1 or claim 24, nor does the Office Action assert that Chen does. Therefore, it is respectfully submitted the rejection of claims 10, 11, 18, 19, 33, 34, 41, and 42 is improper. Withdrawal of the rejection is respectfully requested.

## CONCLUSION

Accordingly, in view of the above amendment and remarks it is submitted that the claims are patentably distinct over the prior art and that all the rejections to the claims have been overcome. Reconsideration and reexamination of the above Application is requested. Based on the foregoing, Applicants respectfully requests that the pending claims be allowed, and that a timely Notice of Allowance be issued in this case. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below.

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If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee that is not covered by an enclosed check please charge any deficiency to Deposit Account No. 50-0463.

Respectfully submitted,

Microsoft Corporation

Date: July 31, 2006

By: 

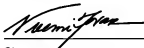
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